

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-15 (canceled).

16. (currently amended): An ~~The~~ image forming apparatus comprising:

an image carrier which is structured to carry an electrostatic latent image on a surface of said image carrier;

a toner carrier which rotates in a predetermined direction while carrying toner and transports said toner to an opposed position facing said image carrier;

an image forming means which applies a predetermined developing bias upon said toner carrier, causes said toner carried by said toner carrier to move to said image carrier, visualizes said electrostatic latent image with said toner, and forms a toner image; and

a timer which measures an elapsed period since an end of formation of a toner image by said image forming means,

wherein an image forming operation for forming a toner image corresponding to an image formation request upon receipt of said image formation request by a user, and an optimization for forming a toner image as a patch image, are selectively executed to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection to control an image density,

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

wherein if said image formation request is not newly received after said elapsed period,
measured by said timer, has reached a first predetermined period, said optimization is executed,
~~of claim 15, and~~

~~characterized in that in the event that~~ wherein if ~~there is~~ said image formation request is
newly received when said elapsed ~~time period~~ time period is shorter than said first predetermined period but
is equal to or longer than a second predetermined period which is shorter than said first
predetermined period, said image forming operation in response to said image formation request
is executed after executing said optimization.

17. (currently amended): The image forming apparatus of claim 15~~6~~, characterized in
that said toner carrier is rotated at least one round or more before formation of said patch image.

18. (currently amended): The image forming apparatus of claim 15~~6~~, further comprising
charging means which charges said surface of said image carrier to a predetermined surface
potential prior to formation of said electrostatic latent image,

characterized in that said elapsed ~~time period~~ time period is measured since termination of charge of
said image carrier by said charging means.

19. (currently amended): The image forming apparatus of claim 16~~5~~, further comprising
restricting means which abuts on a surface of said toner carrier at a restricting position which is
on the upstream side to said opposed position in a rotation direction of said toner carrier, and
accordingly restricts the amount of said toner carried on said surface of said toner carrier,

characterized in that with said toner carrier and said image carrier facing each other at
said opposed position, said restricting position is below the center of rotations of said toner
carrier.

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

20. (previously presented): The image forming apparatus of claim 19, further comprising peeling means which abuts on said surface of said toner carrier at a peeling position which is on the upstream side to said restricting position in the rotation direction of said toner carrier, and accordingly peels off said toner adhering to said surface of said image carrier,

characterized in that with said toner carrier and said image carrier facing each other at said opposed position, said peeling position is above said restricting position.

21. (currently amended): The image forming apparatus of claim 165, characterized in that a surface of said toner carrier is conductive.

22. (currently amended): The image forming apparatus of claim 165, characterized in that said toner image is formed using said toner which contains a wax component which serves as a parting agent for prevention of fixing offset.

23. (currently amended): An image forming method comprising:
forming an electrostatic latent image on a surface of an image carrier in response to an image formation request from a user; and

applying a predetermined developing bias upon a toner carrier which rotates while carrying toner on a surface of said toner carrier, to thereby move said toner carried by said toner carrier to said image carrier, visualize said electrostatic latent image with toner and form a toner image,

wherein if said image formation request is not newly received after an elapsed ~~time~~ period since an end of formation of a previous toner image, by an image forming means, has reached a first predetermined period, optimization is executed which includes forming the toner image as a patch image, to detect a density of said patch image and to optimize a density control

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

factor influencing an image density based on the result of the detection to control an image density,

and wherein if said image formation request is newly received when said elapsed period is shorter than said first predetermined period but is equal to or longer than a second predetermined period which is shorter than said first predetermined period, said image forming operation in response to said image formation request is executed after executing said optimization.

Claims 24-30 (canceled).

31. (currently amended):: An ~~The~~ image forming apparatus comprising:
an image carrier which is structured to carry an electrostatic latent image on a surface of said image carrier;

a toner carrier which rotates in a predetermined direction while carrying toner and transports said toner to an opposed position facing said image carrier; and

image forming means which applies a predetermined developing bias upon said toner carrier, causes said toner carried by said toner carrier move to said image carrier, visualizes said electrostatic latent image with said toner, and forms a toner image,

wherein in the event that said formation request is not newly received after an elapsed period, since an end of formation of a previous toner image, has reached a fourth predetermined period, idling of said toner carrier is executed which includes rotating said toner carrier at least one round,

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

~~of claim 30, characterized in that~~ and wherein in the event that ~~there is not~~ said image formation request is not newly received even after said fourth predetermined period from the end of said idling, said idling is executed once again.

32. (currently amended): : ~~An~~The image forming apparatus ~~comprising: of claim 30,~~
~~characterized in that~~

an image carrier which is structured to carry an electrostatic latent image on a surface of
said image carrier;

a toner carrier which rotates in a predetermined direction while carrying toner and
transports said toner to an opposed position facing said image carrier; and

image forming means which applies a predetermined developing bias upon said toner
carrier, causes said toner carried by said toner carrier move to said image carrier, visualizes said
electrostatic latent image with said toner, and forms a toner image,

wherein in the event that said image formation request is not newly received after an
elapsed period, since an end of formation of a previous toner image, has reached a fourth
predetermined period, idling of said toner carrier is executed which includes rotating said toner
carrier at least one round,

and wherein when said elapsed ~~time period~~ reaches a fifth predetermined period which is longer than said fourth predetermined ~~time period~~, said idling is executed, a toner image is formed as a patch image, a density of said patch image is detected, and a density control factor influencing an image density is optimized based on the result of the detection.

33. (currently amended): The image forming apparatus of claim ~~30~~31, further comprising restricting means which abuts on a surface of said toner carrier at a restricting

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

position which is on the upstream side to said opposed position in a rotation direction of said toner carrier, and accordingly restricts the amount of said toner carried on said surface of said toner carrier,

characterized in that with said toner carrier and said image carrier facing each other at said opposed position, said restricting position is below the center of rotations of said toner carrier.

34. (currently amended): The image forming apparatus of claim 33, further comprising peeling means which abuts on said surface of said toner carrier at a peeling position which is on the upstream side to said restricting position in the rotation direction of said toner carrier, and accordingly peels off said toner adhering to said surface of said image carrier,

characterized in that with said toner carrier and said image carrier facing each other at said opposed position, said peeling position is above said restricting position.

35. (currently amended): The image forming apparatus of claim ~~30~~31, characterized in that a surface of said toner carrier is conductive.

36. (currently amended): The image forming apparatus of claim 31, characterized in that said toner image is formed using said toner which contains a wax component which serves as a parting agent for prevention of fixing offset.

37. (currently amended): An image forming apparatus comprising:
an image carrier which is structured to carry an electrostatic latent image on a surface of said image carrier;

a toner carrier which rotates in a predetermined direction while carrying toner and transports said toner to an opposed position facing said image carrier; and

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

image forming means which applies a predetermined developing bias upon said toner carrier, causes said toner carried by said toner carrier move to said image carrier, visualizes said electrostatic latent image with said toner, and forms a toner image,

wherein an image forming operation is executed which includes forming the toner image corresponding to an image formation request upon receipt of said image formation request by a user, and

in the event that said image formation request is newly received when an elapsed ~~time~~period, since an end of formation of a previous toner image, is equal to or longer than a sixth predetermined period, and before executing said image forming operation in response to said image formation request, idling of said toner carrier is executed which includes rotating said toner carrier at least one round.

38. (currently amended): The image forming apparatus of claim 37, characterized in that in the event that there is said image formation request newly received when said elapsed ~~time~~period is equal to or longer than a seventh predetermined period which is longer than said sixth predetermined period, before forming a toner image in response to said image formation request, said idling is executed and optimization is then executed which requires to form a toner image as a patch image, to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection.

39. (original): The image forming apparatus of claim 37, further comprising restricting means which abuts on a surface of said toner carrier at a restricting position which is on the upstream side to said opposed position in a rotation direction of said toner carrier, and accordingly restricts the amount of said toner carried on said surface of said toner carrier,

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

characterized in that with said toner carrier and said image carrier facing each other at said opposed position, said restricting position is below the center of rotations of said toner carrier.

40. (original): The image forming apparatus of claim 39, further comprising peeling means which abuts on said surface of said toner carrier at a peeling position which is on the upstream side to said restricting position in the rotation direction of said toner carrier, and accordingly peels off said toner adhering to said surface of said image carrier,

characterized in that with said toner carrier and said image carrier facing each other at said opposed position, said peeling position is above said restricting position.

41. (original): The image forming apparatus of claim 37, characterized in that a surface of said toner carrier is conductive.

42. (original): The image forming apparatus of claim 37, characterized in that said toner image is formed using said toner which contains a wax component which serves as a parting agent for prevention of fixing offset.

43. (canceled).

44. (currently amended): An~~The~~ image forming method comprising:
forming an electrostatic latent image on a surface of an image carrier, and
applying a predetermined developing bias upon a toner carrier which rotates in a
predetermined direction while carrying toner on a surface of said toner carrier, to thereby move
said toner carried by said toner carrier to said image carrier, visualize said electrostatic latent
image with toner and form a toner image.

SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198

wherein in the event that said image formation request is not newly received after an elapsed period, since an end of formation of a previous toner image, has reached a fourth determined period, idling of said toner carrier is executed which includes rotating said toner carrier at least one round,

and wherein in the event that said image formation request is not ~~of claim 43,~~
~~characterized in that in the event that there is not said image formation request~~ newly received even after said fourth predetermined period from the end of said idling, said idling is executed once again.

45. (currently amended): An ~~The~~ image forming method comprising:
forming an electrostatic latent image on a surface of an image carrier; and
applying a predetermined developing bias upon a toner carrier which rotates in a
predetermined direction while carrying toner on a surface of said toner carrier, to thereby move
said toner carried by said toner carrier to said image carrier, visualize said electrostatic latent
image with toner and form a toner image,

wherein in the event that said image formation request is not newly received after an elapsed period, since an end of formation of a previous toner image, has reached a fourth predetermined period, idling of said toner carrier is executed which includes rotating said toner carrier at least one round,

~~of claim 43, characterized in that~~ and wherein when said elapsed ~~time period~~ reaches a fifth predetermined period which is longer than said fourth predetermined ~~time period~~, said idling is executed, a toner image is formed as a patch image, a density of said patch image is detected,

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

and a density control factor influencing an image density is optimized based on the result of the detection.

46. (currently amended): An image forming method comprising:

forming an electrostatic latent image on a surface of an image carrier in response to an image formation request from a user; and

applying a predetermined developing bias upon a toner carrier which rotates in a predetermined direction while carrying toner on a surface of said toner carrier, to thereby move said toner carried by said toner carrier to said image carrier, visualize said electrostatic latent image with toner and form a toner image,

wherein in the event that said image formation request is newly received when an elapsed ~~time~~period, since an end of formation of a previous toner image, is equal to or longer than a sixth predetermined period, and before forming the toner image in response to said image formation request, idling of said toner carrier is executed which includes rotating said toner carrier at least one round.

47. (currently amended): The image forming method of claim 46, characterized in that in the event that there is said image formation request newly received when said elapsed ~~time~~period is equal to or longer than a seventh predetermined period which is longer than said sixth predetermined period, before forming a toner image in response to said image formation request, said idling is executed and optimization is then executed which requires to form a toner image as a patch image, to detect a density of said patch image and to optimize a density control factor influencing an image density based on the result of the detection.

***SUPPLEMENTAL AMENDMENT UNDER 37 C.F.R. § 1.111 ATTORNEY DOCKET NO. Q76031
U. S. Application No. 10/622,198***

48. (new): The image forming apparatus of claim 32, further comprising restricting means which abuts on a surface of said toner carrier at a restricting position which is on the upstream side to said opposed position in a rotation direction of said toner carrier, and accordingly restricts the amount of said toner carried on said surface of said toner carrier,

characterized in that with said toner carrier and said image carrier facing each other at said opposed position, said restricting position is below the center of rotations of said toner carrier.

49. (new): The image forming apparatus of claim 48, further comprising peeling means which abuts on said surface of said toner carrier at a peeling position which is on the upstream side to said restricting position in the rotation direction of said toner carrier, and accordingly peels off said toner adhering to said surface of said image carrier,

characterized in that with said toner carrier and said image carrier facing each other at said opposed position, said peeling position is above said restricting position.

50. (new): The image forming apparatus of claim 32, characterized in that a surface of said toner carrier is conductive.

51. (new): The image forming apparatus of claim 32, characterized in that said toner image is formed using said toner which contains a wax component which serves as a parting agent for prevention of fixing offset.